

SUNSHINE.

The following table gives the total hours of sunshine and percentages of the possible:

Stations.	Hours.	Per cent of possible.	Stations.	Hours.	Per cent of possible.
Eureka.....	93	32	Sacramento.....	188	64
Fresno.....	208	70	San Diego.....	246	79
Los Angeles.....	308	86	San Francisco.....	204	69
Mount Tampais.....	174	59	San Jose.....	245	55
Red Bluff.....	164	56	San Luis Obispo.....	211	69

There was much more sunshine during the current December than during December of last year.

NOTES ON THE RIVERS OF THE SACRAMENTO AND SAN JOAQUIN VALLEYS FOR DECEMBER, 1911.

By N. R. TAYLOR, Local Forecaster.

Sacramento watershed.—There was a marked deficiency in precipitation throughout this watershed during the month, and, as a result, all streams either remained stationary at abnormally low stages or else continued to fall slowly.

Of all places within the drainage basin of the Sacramento Valley, where river records have been kept, the Sacramento River at Red Bluff is the only place where the December low-water records have not been broken during the year 1911. Probably not in the civilized history of the Sacramento Valley, and certainly not in the memory of the oldest inhabitant, has there been so little water in the rivers during a winter month as in December, 1911.

River records for the month in question are given for the following selected stations. Kennett on the Sacramento: Mean for the month for 6 years, 2.5 feet; lowest average on record, 0.4 of a foot in 1911. Red Bluff on the Sacramento: Mean for 12 years, 3.1 feet; mean for December, 1911, 1.4 feet; lowest monthly average on record, 0.7 of a foot in 1905. Colusa on the Sacramento: Mean for 6 years, 6.6 feet; lowest monthly average on record, 2 feet in 1911. Knights Landing on the Sacramento: Mean for 12 years, 6.6 feet; lowest monthly average on record, 0.8 of a foot in 1911. Sacramento City on the Sacramento: Mean for 12 years, 12.1 feet; lowest monthly average on record, 5.9 feet in 1911. Folsom on the American: Mean for 6 years, 3.7 feet; lowest monthly average on record, 3.1 in 1911. Oroville on the Feather: Mean for 6 years, 3.2 feet; lowest monthly average on record, 1.2 feet in 1911. Marysville on the Yuba: Mean for 6 years, 8.8 feet; lowest monthly average on record, 6.3 feet in 1911.

The river at Sacramento City reached a stage of 5.7 feet on several days during the month, which is only 0.4 of a foot higher than the lowest stage that has occurred at this point during any month for the past 25 years.

There was an unusual scarcity of water in the foothill and mountain sections, and this condition was intensified during the last half of the month by the freezing over of small watercourses, resulting in the interruption of stream flow and the closing of many large mines.

San Joaquin watershed.—Less than the usual amount of precipitation occurred in this watershed, and all rivers remained practically at the low-water stages.

At Merced Falls on the Merced and Firebaugh on the San Joaquin the rivers averaged 0.1 of a foot below the previous lowest average for the month, and at Jacksonville on the Tuolumne the river averaged 0.5 of a foot lower than the previous lowest average for the month.

NOTE ON WEATHER CONDITIONS IN THE SAN JOAQUIN VALLEY FOR DECEMBER, 1911.

By W. E. BONNETT, Local Forecaster.

Like the four months immediately preceding, December was unusually cool and as in November the average daily maximum was somewhat higher than the normal, but the average daily minimum was much below the corresponding normal. The mean daily range of temperature was 21.7° as compared with a normal range of 16° for December, the high range being due to deficient rainfall, low humidity, and much clear weather. Of the 25 Decembers of record, that of 1897 alone presents a longer succession of days with killing frosts than that of the current month. The monthly minimum of 24° recorded on the 25th is also the lowest December temperature save one.

Precipitation was deficient and almost one-half of the monthly amount fell during a thunderstorm on the 28th, the greater portion of the fall on that date being in the form of snow. At its greatest depth there was 1.5 inches of snow on the ground, the greatest single fall in the history of the station, and a trace remained on the ground in protected places at noon of the next day. The unusual phenomenon excited much interest and business was partially suspended while persons of all ages and classes engaged in snowballing.

NOTES ON METEORS.

Mr. W. E. Bonnett, local forecaster, Fresno, Cal., writes as follows:

A brilliant meteor was observed at 10.12 a. m. of the 8th. I was at Piedra, Cal., on the Kings River about 25 miles east from Fresno, and being in the foothills and in a strange locality my idea of the direction is probably not exact, but I think the meteor was seen slightly to the west of north. It passed downward across the line of vision from right to left at an angle with the horizontal of about 25° . When first seen it appeared with a whitish light as Venus does in the daytime sky, then it appeared to break into red and blue flames in succession. At this juncture it passed behind a cumulus cloud overhanging the higher foothills. It was seen by Mr. F. C. Wood, of Ceres, Cal., about 90 miles northwest from Fresno. The time given by Mr. Wood is 10.15 a. m., the difference being due to our watches probably, and the direction of flight, south, and downward from left to right. No sound from it was heard by either of us, but it was altogether a rather startling phenomenon.

Mr. Henry Claussen, jr., at Point Reyes, Cal., states as follows:

While running a seeder about 10.30 a. m. December 8, 1911, I noticed a streak of fire which appeared about 10 feet in length and 2 feet wide in the northeastern sky. When at an elevation of 45° there was an explosion, the flames going in all directions. Trailing about 15° more there remained a line of bluish-yellow smoke, when a second explosion occurred and a second bright flash became visible, though not as large and bright as the first. A line of bluish-yellow smoke remained. The meteor struck the earth northeast by east of this place. It was a clear sunny day with no wind. In falling the meteor described an arc of 90° .

NOTE BY THE EDITOR: Point Reyes is nearly 300 miles north of the position occupied by Mr. Bonnett.

A BRILLIANT LUNAR CORONA.

Mr. Michael F. Harrington, Orland, Cal., writes as follows regarding an unusually beautiful display of rainbow colors accompanying a lunar phenomenon observed by him about 6.30 p. m. of December 29, 1911:

The rainbow halo [evidently a lunar corona—Editor] was noticed about 6.30 p. m. and lasted till about 7.15 p. m., but at 6.30 p. m. each color and circle of the rainbow was as distinct as though it were hand painted, and a beautiful sight to watch * * *. The red was on the outer edge, then vivid green, purple, and bluish on the inner line. * * * May I ask if this was a sun-ray play upon a mist high in the heavens or reflected light from the moon? In either event it was the first complete rainbow circle I had ever seen, and as for color it was certainly to be admired.